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MCB CAMP LEJEUNE
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MINUTES FROM 21 THROUGH 23 MAY 2013 INSTALLATION RESTORATION PARTNERING TEAM MEETING MCB CAMP LEJEUNE NC

8/20/2013

CH2M HILL

Marine Corps Installations East – Marine Corps Base Camp Lejeune IR Partnering Team Meeting Minutes

MEETING DATES: May 21-23, 2013

LOCATION: MCIEAST-MCB CAMLEJ, NC

ATTENDEES:

Bryan Beck/NAVFAC	Chris Bozzini/CH2M HILL (Day 3)
Dave Cleland/NAVFAC	Kim Henderson/CH2M HILL
Charity Rychak/MCIEAST-MCB CAMLEJ	Matt Louth/CH2M HILL
Patti Vanture/MCIEAST-MCB CAMLEJ	Betsy Reid/CH2M HILL
Gena Townsend/EPA Region 4	Cathy Weber/Osage
Beth Hartzell/NCDENR	Shaun Whitworth/Osage
Randy McElveen/NCDENR	James Macdonell/Sepi (Day 2 afternoon)
Marti Morgan/NCDENR	

FROM: Kim Henderson/CH2M HILL

DATE: August 20, 2013

May 21, 2013

I. Introductions, Logistics, Check-In

Bob Lowder, Tony Sholar, John Townsend, and Capt. Woodall from MCIEAST-MCB CAMLEJ attended the check-in to meet and greet the Team.

II. Review Agenda

III. Review Ground Rules/Action Items/Meeting Minutes

The status of Action Items identified during the previous meeting and on-going Action Items are tracked in the attached spreadsheet.

Consensus: February 2013 meeting minutes are approved.

IV. Base/Navy Time

Current Base topics were reviewed as follows:

- **Henderson and Hickory Ponds –** Charity reviewed the presentation planned for the RAB meeting this week and requested input. The presentation reviews the background information, 2012 notifications, recent results and conclusions for PCBs and mercury in fish, and path forward for the planned fish advisory signs. The signs will be posted by mid-June.
- **Site 65 (OU 9) –** Charity reviewed a presentation regarding the former waste disposal area in Courthouse Bay. She reviewed the previous investigations and results that lead to NFA in a 2001 ROD. NFA was based on the presence of inert waste and no unacceptable human health or ecological risks. MILCON was planned in the area for a parking lot and during MILCON they encountered waste (mostly concertina wire and scrap metal) in January 2013, including asbestos and there are compaction issues. Charity requested input from the Team regarding addressing the asbestos under CERCLA. There is EPA Guidance on how to address asbestos on CERCLA sites. In general, if more than 1% contains asbestos (including soil), than an activity-based assessment is recommended. Asbestos containing soil is unregulated by the State. Currently, the Base is planning to excavate and sift the asbestos debris from the soil and to use the removed soil as backfill in the excavation area. An asbestos contractor removed a 20'x40' area by hand screening and only a 5-gallon bucket of asbestos

containing material was uncovered. The asbestos has been sampled; however, soil has not been sampled for asbestos. Osage is planning to conduct the additional work as OSHA Class IV asbestos work that includes a water curtain for the screen, respirators for workers, and air monitoring.

Gena's attorney indicated that screening the asbestos is not a good idea because it becomes friable and airborne. He recommended that the action be conducted as a TCRA and include LUCs for enforceable documentation. Gena recommends documenting the removal with asbestos-certified contractors, % of potential asbestos-containing material uncovered, and disposal facility. Randy indicated that there is less risk if the material can be left in-place and movement of the material is limited. Gena is concerned with the asbestos fibers in the soil and it has not been tested and sampling should be conducted after the screening to determine what's left in the soil.

The Team agreed the best approach would be to remove the asbestos and asbestos-contaminated soil; however, funding is not available. Gena discussed the options are to 1) redesign the parking lot, 2) reengineer to compact the soil without removing asbestos, or 3) obtain funding to conduct the activities needed to remove the asbestos and confirm there is no risk.

Charity prefers the activity-based risk assessment approach. Gena and Randy indicated that the activity-based risk assessment would need to be conducted after the material is removed. Gena added that if there is a risk, then the path forward would need to be removal. Additionally, the guidance was written more for asbestos-contaminated sites (e.g., old asbestos mines) and is not completely applicable to Site 65.

Bryan questioned the LUCs as part of the TCRA as enforceable. The TCRA report would document the activities conducted and that based on the findings, LUCs are planned. A separate LUCIP/survey plat would be prepared.

Consensus – At Site 65, the Team agreed to collect soil samples for asbestos after the soil is separated to confirm the presence or absence of asbestos and document the actions in a TCRA to include LUCs[i].

[i] August 20, 2013 update - This consensus statement for Site 65 was superseded by NCDHHS regarding soil handling, disposal, and sampling. All soil must be handled as asbestos-containing soil.

The Team discussed that if less than 1% asbestos-containing material; the soil can most likely be used as backfill but the path forward will be decided based on the results.

- **Waste Management Plan (WMP) Updates –** Camp Lejeune (Mainside) and MCAS have separate EPA ID numbers because they are managed separately by different operators. The Base is questioning if CERCLA hazardous waste is generated on the MCAS, can the waste be stored and disposed of under the Camp Lejeune ID? That is the current approach; however, the waste disposal requirements are based on the location the waste is generated. Charity is discussing this internally with the Base and will provide an update for the WMP if needed.
- **Bldg 133/SWMU 615 –** Patti reviewed a presentation regarding a former armory located within the Site 88 boundary where petroleum-contaminated soil was discovered during repairs to the building foundation and PCE was also detected. Groundwater samples were collected and no petroleum contamination was detected; however, VC was detected. The chlorinated solvents are shallow and likely a result of former weapon-cleaning processes at the building and not part of Site 88. Based on the VOCs detected, a VI evaluation was conducted and included a HAPSITE screening and subslab soil gas samples. VOCs were detected and were below screening levels except PCE during the HAPSITE screening in one area and an indoor air sample indicated the results were below screening levels. Patti asked for input on the path forward. The Team discussed addressing the site under CERCLA or RCRA. Gena recommended incorporating this area in with Site 88 since the FS is still in draft format and the COCs and remedies are the same. She recommended collecting additional samples as part of the RD and addressing it in the RD so we are not creating another site on top of another site with the same contamination. The Team agreed to address the site under CERCLA.

- **Site 54 –** Patti reviewed a presentation regarding MILCON of Combat Aircraft Ordnance Loading Area (CALA) planned in the vicinity of the site. A NEPA review was conducted in 2007 and afterwards, an expansion was planned and the site was not re-reviewed. The site will need to be brought up to grade for MILCON and excavation will be needed and a concrete pad will cover the area. Patti asked if confirmation samples are needed and whether it is ok to use the soil for grading. The site was previously cleaned up to industrial levels and will remain industrial so the Team agreed that confirmation sampling is not needed and the soil can be used for grading.

V. Site 69 Update

Dave indicated that the ROD is with the State for signature and the Navy does not currently have funding for the remedial action.

May 22, 2013

VI. Check-In

VII. Partnering Exercise

Patti led a Team-building exercise.

VIII. UXO-23 NTCRA Report

Objective: Provide restoration status and an overview of the completion report.

Overview: A presentation was reviewed by Cathy. A summary of activities completed and an update since the last meeting was provided as follows:

- Site restored and grass cover is established
- PAHs remain in 19 grids (2.5 acres) and lead in 2 of the 19 grids above the PALs at depth and are covered with a geotextile layer
- E&S inspection conducted and approved by the State in April, small area on western side being brought to grade
- Completion report has been submitted and reviewed by the Base and Navy and comments are being addressed and is planned for submittal to the Team in May 2013

IX. UXO-23 Path Forward

Objective: Present current status, discuss approach for future work, and review the schedule.

Overview: A presentation was reviewed by Matt.

The objective of the NTCRA Phase 2 vertical delineation and removal of subsurface soil remaining in the 19 grids (75'x75') based on 1) PAL exceedances of lead and PAHs and/or 2) the evaluation of human health and ecological risks. The potential risks were re-evaluated and the results indicate:

- **Ecological –** For lead, 7 grids exceed the Eco SSL for plants (120 mg/kg) and only two exceed the Eco SSL for invertebrates (1,700 mg/kg) but following the removal of grid JJ12, lead concentrations do not pose an unacceptable risk to ecological receptors at the site. For PAHs, 4 grids exceed the Eco SSL (18 mg/kg) but the average PAH concentration across all grids is less than the Eco SSL; therefore, PAHs are not expected to pose a significant risk to ecological receptors at the site.
- **Human Health –** For lead, following the removal of grid JJ12, there would be no unacceptable risk when compared to Residential or Industrial RSLs. For PAHs, the 95% UCL concentrations for PAHs result in unacceptable risks when compared to Residential RSLs. There is no unacceptable risk when compared to Industrial RSLs. Removal of the top four "hot spot" grids did not result in sufficient lowering of the 95% UCL below the Residential RSLs.

To address lead remaining in soil potential options are to remove JJ12or remove both JJ12 and FF11 based on PAL exceedances and consider real time in field delineation or delineate prior to removal. To address PAHs remaining

in soil the NTCRA approach will be followed for delineation, including compositing 4 grab samples within each grid at depth and collecting samples every 6 inches and analyze the samples via mobile lab until the delineation is complete. Where clay pigeons are visible, sampling will be conducted beneath them.

The path forward is to prepare a UFP-SAP Addendum for additional subsurface soil evaluation and planning within NTCRA boundaries (approximately 100 soil samples for PAHs and 10 soil samples for lead). A site reconnaissance will also be conducted to identify any additional skeet piles and surface MEC/MPPEH. Results will be presented in an interim technical memorandum.

Consensus – For the UXO-23 UFP-SAP Addendum, the Team agrees to the NTCRA Phase 2 delineation approach for lead in 2 grids and PAHs in 18 grids that will follow the original NTCRA approach for compositing 4 grab samples within each grid at depth and collecting samples every 6 inches. The samples will be analyzed via a mobile lab until the delineation is complete to the PALs.

For the future RI, the North Area groundwater investigation and Bearhead Creek sediment investigation is complete and remaining tasks include the NTCRA Phase 2 delineation, South Area groundwater investigation, Beaver Dam Creek sediment/surface water investigation, and MMRP investigation.

For the MILCON support, an ESS Determination Request was submitted and approved by MARCORSYSCOM in April 2013 for the Greater Wallace Creek Area Areas to provide 3R training and on-call support outside Phase I MRS boundary and to provide 3R training and on-call support when intrusive activities do not extend beyond the depths of fill or previous soil disturbance in the areas of imported fill or previously disturbed soil inside Phase I MRS. An ESS was also submitted for the Phase I MRS area (NTCRA area with buffer) for construction support and service approval was provided by MARCORSYSCOM in April 2013. The Phase I MRS area will be assessed as a new MMRP site (UXO-28 – Wallace Creek Phase I).

X. UXO-21, 22, and 24 Updates

Objective: Review background, discuss RTCs, review schedules, and sign UFP-SAPs.

Overview: A presentation was reviewed by Matt. The background for each site was reviewed and the next phase for each site is as follows:

- **UXO-21 Phase 2 ESI -** Investigate nature and extent of MEC to further evaluate site boundaries by conducting 10% DGM where MEC/MPPEH discovered adjacent to site boundary (10.6-acre area), intrusive investigation of geophysical anomalies, and soil sampling for MC if potential for releases identified and/or controlled detonation conducted. The ESS was approved by MARCORSYSCOM in April 2013. The UFP-SAP was submitted and NCDENR had no comments and EPA had 2 typographical comments that will be corrected. The UFP-SAP was signed at the meeting. The schedule for the field activities are vegetation clearing/surveying/DGM in June/July 2013, intrusive investigation in August/September 2013. Activities will start in the northern area for MILCON. The Draft Phase II ESI Report is planned for completion in January 2014.
- **UXO-22 RI -** Investigate nature and extent of MEC by conducting a surface sweep within the DRMO area to remove large metal debris and soil sifting in NW corner followed by 10% DGM and intrusive investigation of statistically representative geophysical anomalies and disposal pits (if identified). The ESS was approved by MARCORSYSCOM in May 2011 and an Amendment is being prepared for soil sifting and is planned for submittal in June 2013. The UFP-SAP was submitted to the Team for review last week. Gena does not have any comments and Randy is still reviewing. Gena expressed an overall concern regarding the MMRP site boundary and not including Site 82 since there are known burial areas north of the current MMRP site boundary. The Team discussed and questioned the eastern site boundary and why it does not extend to the Piney Green Road. Kim recalled this comment in the past and that it may be an old figure where the topo and site boundary did not line up and will correct this in future presentations. The surface sweep/large metal debris removal is planned to begin in August 2013 followed by the RI field activities in fall 2013. The Draft RI Report is planned for completion in spring 2014. An NTCRA is also planned for the batteries found in the drainage swale during previous investigations and is pending

funding. Randy questioned collecting samples in Wallace Creek. Surface water samples are collected as part of Site 82 LTM and will be reviewed during tomorrow's agenda topic.

Action CH2M HILL – Take pictures and videos of the UXO-22 field activities, including the DRMO area activities.

- **UXO-24 PA/SI -** 100% DGM of 2.5-acre area was conducted May 2012, identified 1,479 targets representing potential MEC, and there was no indication of large burial pits. The UFP-SAP was amended to conduct intrusive investigation of up to 1,000 anomalies; collect soil, groundwater, surface water, and sediment samples for MC if release suspected and/or controlled detonations are conducted; and to conduct soil sampling for pesticides associated with Site 37 to confirm potential ecological risks identified during the previous CSA. The UFP-SAP was submitted to the Team. Gena has no comments and Randy is still reviewing. The UFP-SAP was signed at the meeting. The field activities are planned this summer followed by a PA/SI report planned for completion this winter.

XI. UXO-06 RI Update

Objective: Discuss next steps and review schedule of RI/FS.

Overview: A presentation was reviewed by Matt. Additional RI activities are planned to further define the nature and extent of MEC using 3% transect-based DGM or mag-and-dig and 100% intrusive investigation in the area northeast of the initial RI boundaries. MILCON has been conducted in a lot of this area and Charity confirmed that EOD was not called during the MILCON activities. An ESS Amendment is being prepared to cover this additional area and is planned for submittal in May 2013. Once the ESS is approved the additional RI activities will be conducted this summer followed by the Draft RI report this winter.

Charity questioned that if additional funding is available, if 100% could be conducted in the wooded area south of McHugh where items were found during the 10% RI activities in this area. Randy agreed and requested that the 100% be conducted in this area rather than the 10% investigation in the expanded RI boundary. LUCs will be needed at the site in the future; however, Charity would like to avoid having LUCs in the utility corridors for future repairs. If additional data is needed or based on findings of previous MILCON activities to achieve this goal, Charity would like to compile the information. There were no HE items discovered and there is the potential for NFA within most of the cantonment areas once the RI results are compiled and documented. Dave and Charity discussed the funding mechanism for conducting 100% investigation in cantonment areas where items were found and within utility corridors. The Team thinks the utility corridors can be excluded from future LUCs since there were previously dug. Charity also recommended a surface sweep in areas adjacent to the roadways. Dave and Charity will discuss future activities further.

XII. UXO-19 RI/FS

Objective: Review key components of RI/FS and the schedule. Provide a schedule update for the RI/FS.

Overview: A presentation was reviewed by Kim. The objectives of the RI/FS were reviewed. MILCON support was completed in April 2013 and a 60mm mortar projectile was found under the former first aid station and 81mm mortar projectile was found under the culvert. These results are being added to the RI/FS report and the draft is planned for submittal to the Base and Navy within the next 2 weeks and the draft to the Team is planned for submittal to the Team in July 2013. The preferred alternative can be chosen at the August 2013 meeting.

Action CH2M HILL – Check on and identify how many items were identified under structures at UXO-19 and include in the RI/FS report.

Per previous action items, Charity will provide CH2M HILL with Camp Devil Dog MILCON as-builts and topo maps when available and CH2M HILL will develop a more detailed map of areas of UXO-19 that have been cleared and the depths.

XIII. Vapor Intrusion Update

Objective: Discuss update from the IR 5-Year Update sampling, provide the results of the additional indoor air sampling at Site 88, provide a summary of the UST/RCRA 5-Year Update, and review schedule.

Overview: A presentation was reviewed by Matt. The IR 5-Year Update sampling was conducted April 8-17, 2013 and the analytical results are pending. Samples were collected at previously identified buildings at Sites 35, 73, 78, 88, 89, 93, and 96. A HAPSITE screening was conducted at the buildings where indoor air samples were collected and there were no obvious indoor air sources identified.

At Site 88 during the VIMS sampling, TCE was detected in indoor air at elevated concentrations during Round 4 VIMS and were not historically detected in pre- or post-VIMS sampling. Additional indoor air samples were collected using a different lab and TCE was not detected in any of the samples.

The detection of TCE is not believed to be vapor intrusion related based on the following:

- VIMS in each of the buildings was operational
- TCE has not been detected at elevated concentrations in subslab soil gas or indoor air during several phases/years of investigation
- PCE is several orders of magnitude higher than TCE in the subslab and was not detected above the IASL in the indoor air samples
- PCE was 1-2 orders of magnitude (building dependent) higher than TCE in the exhaust samples

Possible explanations for the initial TCE detections are:

- Potential background sources (although none obvious during sampling)
- Flow controllers may have been contaminated as the lab did not have a process in place to purge flow controllers with heated clean air in a batch, regulators are opened and sampling modules/ferrules are replaced, and only one out of each batch was checked by filling up a QC canister

Going forward, CH2M HILL will request purging of flow controllers and Charity indicated that the Navy may want to re-evaluate their SOPs based on these findings.

For the UST/RCRA sites, the initial screening process was conducted similar to IR sites and shallow groundwater data was screened within 100 ft of buildings against generic screening criteria. Additionally, the petroleum vapor intrusion criteria was applied to sites with petroleum contamination and shallow groundwater was screened within 30 ft of buildings and this was further refined by evaluating soil concentrations. Clean soil (<100 mg/kg TPH) between groundwater contamination and the building slab (at least 5 ft for benzene groundwater concentrations <100 mg/L and at least 10 ft for benzene groundwater concentrations <1,000 mg/L).

The 5th Round of VIMS monitoring was completed in May 2013. UST/RCRA field activities are planned in June/July 2013. The VIMS Summary Report is planned in August/September 2013 and IR and UST/RCRA sites will be presented separately. The IR Report is planned for submittal in August/September 2013.

XIV. SDZ Update

Objective: Provide an update on the Expanded SI field activities that were completed this month and project schedule.

Overview: A presentation was reviewed by Matt. Almost all of the 1,550 potentially accessible anomalies (not under deep water channels) were assessed visually (e.g., underwater) or intrusively. Many anomalies (75%) were assessed to be underwater, inaccessible, too deep to identify the object, and were not uncovered. Approximately 25% of the anomalies were located and investigated and approximately 11% of these anomalies were determined to be MEC/MPPEH and the rest were other debris. Many aerial geophysical anomalies were 'spot on', and all MEC found was in the exact position the aerial survey indicated.

Findings included six MEC items (rocket warheads) found primarily north of Browns Island, 35 MPPEH items, and 638 lbs of MDAS. Three controlled detonations were conducted and sandbag mitigation lowered the exclusion zone to 220 ft (from 2,630 ft) and post-BIP sampling was conducted, analysis is pending.

Gena expressed concerns with 75% of anomalies remaining in-place and are beneath the water. She suggested correlating the locations and whether they are potential bombs. Charity questioned how intrusive can be conducted within the shallower water. Coffer dams could potentially be used. Gena suggested additional attempts in shallow water areas (e.g., 1 ft of water). Dave indicated that MMRP underwater work has not yet been conducted based on costs and available technologies with exception of some limited work at St. Juliens Creek Annex with scuba divers and large magnets. Marti indicated that in NC under the FUDS program, there are the same issues and public notification, posting signs, and education is provided. The Team discussed what the document will conclude and recommend. The report will present the results and the limitations of available technologies and potentially recommend signs. There are current signs where the majority of items were found. Bryan questioned whether this will become a site but it's not likely based on the Base not owning the property. Charity indicated that MARCORSYSCOM previously recommended potential periodic sweeps if items have shifted over time but since they have not then we can regroup with MARCORSYSCOM to discuss the data.

The data collection was just completed and still needs to be processed.

Action CH2M HILL – Generate an off-Base SDZ figure showing the anomalies identified, anomalies investigated, and findings for discussion at the next meeting.

The Draft Expanded SI Report is planned for submittal to the Team in November 2013.

XV. UXO-14 NTCRA Update

Objective: Review background, pre-excavation soil sampling, NTCRA activities, path forward, and schedule.

Overview: A presentation was reviewed by Shaun. The site background was reviewed. Pre-excavation soil sampling was conducted in March 2013 to laterally refine the boundaries for the NTCRA. 20 initial and 6 additional step-out samples were collected until the PALs were met. Antimony concentrations were all below the PAL and 3 samples indicated elevated lead concentrations and step-out samples were collected until the PAL was met. The final extent for the NTCRA was 318 cubic yards.

Eighteen tons of EnviroBlend was applied in April 2013 to stabilize the lead impacted soil with an approximate dose of 4%. This percentage was based on experience with the skeet range and supplier recommendations.

Post-treatment waste characterization was completed in 5-point composites from each area and TCLP results indicated the soil was non-hazardous. 333 tons were excavated and disposed of off-site.

Post-excavation sampling was conducted in grids and one 5-pt composite was collected from each grid and analyzed for total lead and antimony from the base of the excavation to confirm the vertical extent. The final results indicate the removal was conducted to well below PALs. The highest remaining lead concentration was 30.5 mg/kg and antimony was 0.45 mg/kg. Data validation is currently being conducted and will be completed in June 2013. Site restoration was completed this month and a closeout report and NFA decision document are planned for submittal in July 2013.

Charity asked whether the Enviroblend dose is based more on concentration or soil types. Osage indicated that it is dependent on concentration and pH. At UXO-01, a 2%, 3%, and 4% dosage were used.

XVI. Site 89 Air Sparge Update

Objective: Provide background and an update on the remedial action, well Installation, IDW management, system layout, reporting, and schedule.

Overview: A presentation was reviewed by Shaun. The site background was reviewed.

Air sparging (2 horizontal and 3 vertical wells) was part of the selected remedy for groundwater. A 910-ft (Well A) and 840-ft (Well B) horizontal well and three 85-ft deep vertical wells were installed in March 2013. The wells were installed as design except Well A had a small waiver near MW81 to steer the bore path around it. Seven roll-offs and 2,900 gallons of water were generated for off-site disposal.

Six existing monitoring wells were permanently abandoned and reinstalled and eight new monitoring wells were installed to supplement the 19 wells that will make up the performance monitoring well network to track the progress of the remedial action.

The compressed air system is currently under construction with an expected completion by late June 2013. Charity asked about whether the housing will require a facility ID. Shaun indicated that it will not since it is a temporary structure.

Action Shaun – Submit the Site 89 AS O&M manual to NIRIS and scan in the Sites 78 and 82 O&M manuals.

Additional site activities include installation of overhead power line and transformer, trenching of conveyance lines, site restoration, baseline groundwater sampling event, delivery and setup of compressed air system, Phase I startup 0-24 hours – low flow, Phase II (24-96 hours) – increased flow D.O. and well monitoring, and continued operation to target flow rate.

Dave asked about operating procedures and whether operation will be similar to Site 35 and whether the electrical is subcontracted or by the Base. Shaun indicated that sparging will be started low and ramped up slowly over time to mitigate the potential for surfacing and the electrical is by subcontractor. Dave asked to ensure the O&M manual is submitted to NIRIS and Charity requested copies of previous O&M manuals.

Reporting in August 2013 will include a Project Closeout Report to document the baseline groundwater sampling event and air sparge system installation and startup and an O&M Manual will describe the system process flow, operational procedures, maintenance requirements, and system components.

Gena asked about the closeout report and requested one closeout report to document all the components of the remedial action. Dave indicated Sepi and Osage will each submit separate closeout reports to document their work and CH2M HILL will compile into one RACR.

Charity indicated that the Base will likely want to use the Site 89 area for parking. Gena raised concerns that the air sparge systems need to vent and the areas should not be additionally paved.

XVII. Five-year Review (FYR) Milestone Update

The FYR milestone tracking table was reviewed by Kim and the current status of each milestone. Most of the milestones have been completed and the remaining milestones include:

- Reinstitute LTM at Site 69 - Remedy-in-place planned in FY2014 and includes MNA. Dave - phasing
- Complete FS, PRAP, and ROD for Site 88 - Draft Site 88 FS submitted (CH2M HILL, 2012) and PRAP/ROD pending FS review. Gena and Randy indicated that a round of site-wide groundwater samples will likely be needed based on the delay between the previous sampling event and the FS.
- Evaluate alternative groundwater treatment technologies at Sites 6, 78, and 82 - Initiated for Site 78 in 2012/2013 and planned for Sites 6 and 82 in 2015.

The next FYR is due FY15 and Dave indicated that it will be funded in FY14. The Team discussed the schedule since the previous FYR review and signature was delayed based on public data requests at the time. Gena indicated that the rule of thumb is to maintain the previous existing due date, which would be due to the Team by January 1, 2015.

Charity recommended that we include the FYR milestones in the next SECNAV award package.

Charity questioned documentation of when sites will achieve response complete based on recent inquiries and whether we can start documenting this in the FYR or annual SMP updates. Gena indicated that this information is estimated in RODs (rule of thumb is 30 years) and yearly LTM report documents.

XVIII. Site 89 PRB Update

Objective: Provide an update on the selected remedy for downgradient groundwater contamination at Site 89 including the installation of two PRBs on east side of White Street and MNA; and aerators to address surface water contamination.

Overview: A presentation was reviewed by James. Field activities were initiated last week and the PRB location was staked. Next week, E&S controls will be installed, vegetation clearing will be initiated, and the access road will be installed. Details of the PRB installation were reviewed and include:

- PRB B – trenching west to east
- PRB A – trenching south to north, working trencher off platform
- Waste characterization sampling via DPT borings along PRB alignment during site preparation (supplemental waste sampling as needed)
- Approximately 2,900 cubic yards of material anticipated for offsite disposal
- On site water containment (21,000 gallon frac tanks)
- Volume of water for offsite disposal is estimated at 40,000 gallons

The Team discussed generated waste. There has previously been hazardous IDW generated from the site but is not expected during this action. The water is planned to be directly vac-trucked and analyzed to confirm non-hazardous disposal.

The project schedule was reviewed as follows:

- Site Preparation/Platform Construction/Waste Characterization (May and June 2013)
- PRB Installation and Waste Hauling (July 2013)
- MW Installation (August 2013)
- Site Restoration (August/September 2013)
- IRACR (November/December 2013)

Dave explained that the schedule was put on hold since the last meeting based on the Base natural resources request for a Coastal Consistency Determination because the creek discharges into the New River and wetlands are impacted; however, after discussion with NCDENR, a waiver was issued based on the CERCLA action that will comply with the requirements. In the future, Randy will submit the work plans or designs to the Division of Coastal Management to request a waiver.

Action Charity – Verify Base requirements for the Site 49 remedial action with Base natural resources.

James is entering field schedule dates as they are confirmed to the IR website calendar and will also send email updates to the Base and Navy.

May 23, 2013

XIX. Check-In

XX. Site 86 FS RTCs and Preferred Alternative

Objective: Review FS components, select preferred alternative, and the schedule to meet the FY14 goal.

Overview: A presentation was reviewed by Chris. The RAOs, cleanup levels, remedial alternatives, and lines of evidence for MNA were reviewed.

The draft FS is currently with EPA and NCDENR for review. Beth and Gena discussed the FS and agree MNA is the preferred alternative. Gena indicated that the lines of evidence for MNA are not presented in line with the presentation, the FS does not highlight the mass removed and residual time for MNA justification. Also, there is no figure that shows the horizontal well and plumes removed. Beth and Gena will provide comment/no comment letters.

Action CH2M HILL – Update the Site 86 FS to better present the lines of evidence for MNA in one section "lines of evidence for MNA" in the FS to include mass previously removed, residual time frames and be more in line with

the presentation and include a figure in this section that identifies the previous actions, including the horizontal well and plumes removed. Provide a redlined version to the Team.

Consensus - For the Site 86 PRAP, the Team agrees to Alternative 2 (MNA and LUCs) as the preferred alternative for Site 86.

The schedule was reviewed and the Team decided that the public meeting should be pushed to the November 2013 RAB meeting to allow time for PRAP reviews and based on the government furloughs and travel restrictions. Charity indicated that Base furloughs begin July 8th.

XXI. Site 35 Air Sparge Update

Objective: Review recent groundwater results, discuss air sparge operation, determine path forward, and schedule.

Overview: A presentation was reviewed by Chris. The horizontal air sparge well start-up was in August 2010 and it was turned off February 20, 2013. The system ran for over 31 months and was in operation 70% of the time between July 2011 and February 2013.

In summary, monitoring shows concentrations trending downward in source area and target zone of the Castle Hayne aquifer. The quarterly sampling was just conducted in May 2013 and the results can be presented and discussed at the August 2013 meeting. Gena requested that we review the individual well data and summarize results at the next meeting.

Action CH2M HILL – Present the Site 35 air sparge well data by individual wells over time at the August 2013 meeting.

The UST program has initiated a treatment system for shallow groundwater via recovery trench and surfactant injection and recovery system at the Armory, Building TC341 and CVOCs have been detected.

Action CH2M HILL – Check on available Site 35 well data between the Armory, Building TC341 and the Site 35 plume to evaluate potential impacts from UST.

XXII. Site 78 Bench Scale and LTM/LUCs Update

Objective: Provide treatability study update, review changes to LTM and LUCs, and review schedule.

Overview: A presentation was reviewed by Chris. The bench-scale study within the Site 78S area to evaluate the impacts of bioaugmentation was monitored through May 2013. The conclusions are:

- GW75-1 Area -sulfate without/with bioaugmentation indicated no meaningful reduction in toluene or TCE
- GW124UCH Area - bioaugmentation only indicated a 99.7% reduction in total CVOCs (TCE, cis-1,2-DCE reduced to non-detectable concentrations and VC remains at detectable concentrations)
- GW124UCH Area - EHC-L + bioaugmentation indicated100% reduction in total CVOCs (TCE, cis-1,2-DCE, and VC reduced to non-detectable concentrations)

No further bench scale monitoring is recommended and the field implementation is recommended to focus on IR78-GW124UCH Area only based on the results. Two injection wells and three monitoring wells were previously installed from 50-60 ft bgs. The approach recommended is injection of one pore volume (15' radius of influence), 10,600 gallons per well, and chasing with anaerobic water to achieve volume. The Team discussed whether EHC-L with bioaugmentation or bioaugmentation only is preferred based in the results and determined to implement EHC-L with bioaugmentation. The Team also discussed eventually turning off the pump and treat system and amending the ROD.

Six months of post-injection monitoring 1-, 3-, and 6-month monitoring events will be conducted and includes three groundwater samples (need to include bio sampling to evaluate how long the bugs remain in the groundwater) and field screening two soil gas locations for methane in soil vapor in the office of the adjacent Building 1603 to evaluate potential impacts from biodegradation of CVOCs.

Based on the Expanded Groundwater Investigation results, the LTM network and LUCs need to be updated. The current and proposed LTM network in each aquifer was reviewed.

Action CH2M HILL – Confirm Site 78N MWs are still in-place for LTM based on recent MILCON activities. MW115 has been abandoned.

The intrusive activities control boundary needs to be revised to encompass the VOC plume and the aquifer use control boundary will be extended to 1,000 ft from the updated intrusive activities control boundary.

The Draft Expanded Groundwater Investigation Summary Tech Memo is planned for submittal in July 2013 to present the current CSM, provide recommendations for changes to LTM network and LUC boundaries, and the addition of metals to LTM in FY2015. The Draft Treatability Study Work Plan is planned in August 2013 with field implementation in November 2013.

A LUCIP will be needed to document the LUC updates.

XXIII. Sites 6 and 82 Update

Objective: Provide an update on the supplemental investigation and schedule.

Overview: A presentation was reviewed by Chris.

Site 6:
The chlorobenzene groundwater data collected over time was reviewed and the last quarterly event is planned in July 2013. Based on the Expanded Groundwater Investigation results, the LTM network needs to be updated. The current and proposed LTM network in each aquifer was reviewed. Gena questioned the need for downgradient wells.

Site 82:
The surface water and sediment trends over time were reviewed. The following uncertainties for surface water and sediment impacts and potential path forward were presented.

Data Gap	Uncertainty	Reason for Uncertainty	Potential Path Forward
Groundwater Flow	Does groundwater flow to wetlands, Wallace Creek, or beneath?	CVOCs appear to attenuate in wetlands and are not observed across Wallace Creek; unclear if groundwater is discharging to Wallace Creek	Evaluate vertical gradients near Wallace Creek by installing nested piezometers at several locations
Multiple Source Areas	Have all sources and groundwater plumes been identified?	Elevated CVOC concentrations detected; not fully delineated, sources unknown	Delineate areas of impacted groundwater

The current and proposed LTM network in each aquifer was reviewed. Gena questioned the need for downgradient wells.

The Draft Expanded Groundwater Investigation Report is planned for completion in July 2013.

Charity discussed the potential for removing hot spots in the future.

Action CH2M HILL – Revisit the Sites 6, 82, and 78 proposed LTM networks to incorporate installation of downgradient wells.

XXIV. FY12 LTM Summary and FY14 LTM Scoping

Objective: Review the FY12 LTM RAB presentation and FY14 LTM scoping.

Overview: Presentations was reviewed by Chris. The FY12 results for each site were reviewed as follows:

- Site 3 – The LTM program includes annual groundwater sampling for VOCs and SVOCs at 4 wells. The findings indicate VOCs not detected, SVOCs detected (benzo(a)anthracene and naphthalene above cleanup levels). The recommended path forward is to reduce LTM frequency to every two years, reduce LTM analytes to detected SVOCs only, maintain LUCs.
- Site 6 – The LTM program includes annual groundwater sampling for VOCs at 8 wells. The findings indicate that chlorobenzene was detected at fluctuating concentrations and additional investigation was conducted in 2012-2013. The LTM was suspended pending additional investigation and the LTM program is being re-evaluated to reinitiate in 2014. LUCs are in-place.
- Site 35 – The LTM program includes annual groundwater sampling for VOCs for MNA at 37 wells and MNA parameters collected every 5 years. The findings indicate air sparging met treatment objectives and system turned off, MNA concentrations gradually decreasing over time, and compounds are not migrating off site. The recommended path forward is to maintain annual monitoring, optimize the monitoring well network, and maintain LUCs.
- Site 36 - The LTM program includes biennial groundwater sampling for VOCs for MNA at 10 wells, MNA parameters collected every 5 years, and semiannual sampling for VOCs in surface water at 4 locations. The findings indicate that groundwater concentrations are steady, but relatively low and there are no detections in surface water. The recommended path forward is to continue biennial monitoring and maintain LUCs.
- Site 73 – The LTM program includes biannual groundwater sampling for VOCs at 6 wells for the biobarrier evaluation, annual groundwater sampling for MNA of VOCs at 30 wells, MNA parameters collected every 5 years. The findings indicate that the air sparge met the treatment objectives and the system was turned off, the biobarrier is effective with an average of 92% reduction in total VOCs based on the first injection. The second injection is planned in 2013. The recommended path forward is to continue LTM, optimize well network, and maintain LUCs.
- Site 78 – The LTM program includes annual groundwater sampling for VOCs at 38 wells. The findings indicate CVOCs and BTEX concentrations remain consistent. An additional investigation was conducted 2012-2013. The recommended path forward is to continue pump and treat system operation, conduct treatability study in Site 78 South area, continue LTM and maintain LUCs, and re-evaluate based on results of additional investigation.
- Site 82 – The LTM program includes annual groundwater sampling for VOCs at 30 wells and semiannual surface water and sediment sampling at 3 samples locations. The findings indicate CVOCs trending upward in shallow and intermediate wells, CVOCs trending downward in deeper wells, and CVOCs detected in surface water and sediment below State standards. An additional investigation was conducted 2012-2013. The recommended path forward is to continue pump and treat system operation, continue LTM and maintain LUCs, and re-evaluate based on results of additional investigation.
- Site 93 – The LTM program includes annual groundwater sampling for VOCs for MNA at 12 wells and MNA parameters collected semiannually. The findings indicate VOC concentrations consistent or declining. The recommended path forward is to continue LTM and maintain LUCs.

Gena requested to beef up the presentation to provide additional data. The Team decided the max concentrations for each site will be presented/available at the RAB.

The FY14 LTM scoping was reviewed for each site as follows:

- Site 3 – The FY12 recommendations are to remove VOCs, remove select SVOCs, reduce monitoring to biennially, and use the FYR to potentially consider alternative to reduce remedial timeframes. In FY 13, we analyzed for VOCs and SVOCs from 4 wells. In FY14, no monitoring is scheduled and in FY15 the FY12 recommendations are proposed to be implemented.

- Site 6 - Monitoring was discontinued due to the ongoing chlorobenzene investigation. In FY14, the proposed LTM network presented during today's presentation for 21 wells for select VOCs are proposed to be implemented.
- Site 35 – The FY12 recommendations are to remove 6 wells and add 3 surficial wells and 1 upper Castle Hayne well to the LTM program. In FY13, quarterly sampling was conducted in the air sparge area (10 wells and 1 soil gas location) and annual sampling was conducted for MNA at 32 wells for select VOCs. In FY14, annual MNA sampling is recommended at 30 wells for select VOCs. If rebounding occurs in the air sparge area, quarterly monitoring is planned at 10 wells and 1 soil gas point.
- Site 36 - The FY12 recommendations are to continue monitoring to biennially for 10 wells, reduce surface water monitoring to every 5 years, NAIPs every 5 years, and use the FYR to potentially consider alternative to reduce remedial timeframes.
- Site 49 – In FY14, 5 wells are planned for select VOCs monitoring biennially.
- Site 69 – In FY14, 27 wells are planned for sampling annually for chemical agent and chemical agent degradation products, metals, pesticides/PCBs, and NAIPs.
- Site 73 - The FY12 recommendations are to remove 3 wells and add 2 surficial wells and 2 upper Castle Hayne well. In FY13, 2 rounds of quarterly air sparge monitoring were conducted at 12 wells for select VOCs, semiannual biobarrier monitoring was conducted at 6 wells for VOCs, NAIPs, VFAs, and Microbial, and annual MNA at 18 wells for VOCs. In FY14, annual MNA & biobarrier LTM at 43 wells is planned for the same parameters.
- Site 78 - The FY12 recommendations are to revise the LUC boundary, re-evaluate the LTM network based on the results of the additional investigation, incorporate the recommendations of the OU1 metals investigations, and evaluate the recovery well efficiency, groundwater capture zones, and optimize the groundwater treatment systems. In FY13, annual monitoring of 44 wells for VOCs was conducted. In FY14, LTM is proposed at 84 wells for VOCs.
- Site 82 - The FY12 recommendations are to revise the LUC boundary, re-evaluate the LTM network based on the results of the additional investigation, incorporate the recommendations of the OU2 metals investigations, and evaluate the recovery well efficiency, groundwater capture zones, and optimize the groundwater treatment systems. In FY13, annual monitoring of 30 wells and semiannual monitoring of 3 surface water and sediment locations was conducted for select VOCs. In FY14, LTM is proposed annually for 35 wells and semiannually for 3 surface water and sediment locations for select VOCs.
- Site 89 - In FY14, to monitor air sparge operation 26 wells and 4 soil gas locations are planned for quarterly sampling of select VOCs; to monitor PRB operation, 21 wells and 3 surface water locations are planned for semiannual sampling for select VOCs; for MNA, 36 wells and 5 surface water locations are planned for annual sampling of select VOCs.
- Site 93 - In FY12 recommendations are to sample one well for DHC and use the FYR to potentially consider alternatives to reduce remedial timeframes. In FY13, annual sampling was conducted at 12 wells for select VOCs. In FY14, annual groundwater monitoring of 12 wells for select VOCs and NAIPs and one-time groundwater sampling from IR93-MW06 for DHC and functional genes is proposed.

Consensus – The Team agrees to the FY14 LTM general approach presented at the May 2013 meeting for the UFP-SAP.

The Draft FY12 LTM Report will be submitted to the Navy/Base in May 2013. The Draft FY14 LTM UFP-SAP will be submitted to the Navy Chemist in June 2013. The last FY13 LTM event is planned in August 2013.

XXV. FY 2013 Goal Update

The Team reviewed the FY 2013 goals and discussed the current status of each goal. The goals were color-coded to identify high priority document reviews (red), upcoming document submittals (yellow), and documents close to finalizing (green). The goals are presented in a table at the end of these minutes.

XXVI. Parking Lot

SWMU 574 will be transferred to CERCLA to be included within OU1 based on the same COCs and location within the OU. The Base will send a letter to the State recommending transferring the site to CERCLA and the RFI will not be finalized but incorporated into a tech memo under OU 1. A separate meeting will be scheduled with the State to discuss risk assessments under RCRA.

There are three new MMRP sites:

- UXO-27 - Gun Position Owl (Marti)
- UXO-28 – Wallace Creek Phase 1 MRS (Randy)
- UXO-29 - MCAS Former Demonstration Range (Marti)

There were no items remaining in the parking lot after the meeting.

XXVII. Next Partnering Meetings

Start: August 20, 2013
End: August 21, 2013
Facilitator: Beth
Host: Patti/Charity
Chair: Dave
Timekeeper: Gena
Location: MCIEAST-MCB CAMLEJ

Start: November 12, 2013
End: November 14, 2013
Facilitator: TBD
Host: TBD
Chair: TBD
Timekeeper: TBD
Location: TBD

The next RAB date will be proposed as August 21, 2013.

XXVIII. Agenda Topics for Next Partnering Meetings

Agenda Items for the August 2013 Partnering Meeting

Agenda Topic	Required Time
Standing Agenda Items:	
Check-in	30 minutes
Review agenda	15 minutes
Review action items, approve minutes from prior partnering meeting; read ground rules	30 minutes
Partnering exercise	30 minutes
Base/Navy time (SWMU 574/OU 1)	1 hour
Review FY2013 goals	30 minutes
Parking lot	15 minutes
Agenda items for next partnering meeting, team assessment, +/Δ review, checkout	30 minutes
Lunch	3 hours
Breaks	1 hour
Time for Standing Agenda Items:	**8 hours**
Technical Agenda Items:	
Site 35 AS Data	30 minutes
Site 49 ROD and RD Update	30 minutes
Site 65 Update	30 minutes
Site 69 RA Update	15 minutes
Site 78 Update (TS Work Plan and groundwater investigation report RTCs)	30 minutes

Agenda Items for the August 2013 Partnering Meeting

Agenda Topic	Required Time
Site 6 and 82 Update (groundwater investigation report RTCs)	30 minutes
Site 86 PRAP RTCs	15 minutes
Site 89 AS Update (Osage)	30 minutes
Site 89 PRB Update (Sepi)	30 minutes
FY12 LTM Report and FY14 LTM UFP-SAP RTCs	30 minutes
UXO-06 RI Update	30 minutes
UXO-14 NTCRA Report RTCs (Osage)	15 minutes
UXO-19 RI/FS RTCs	30 minutes
UXO-21, 22, and 24 Field Update	30 minutes
UXO-23 RI Update	30 minutes
UXO-23 NTCRA Report RTCs (Osage)	15 minutes
SDZ Data and Path Forward	30 minutes
FY14 SMP Update and RTCs	30 minutes
Vapor Intrusion Update	30 minutes
UXO-27 (Gun Position Owl) PA/SI	30 minutes
UXO-29 (MCAS Former Demonstration Range) Update	30 minutes
Time for Technical Agenda Items:	**10.5 hours**
TOTAL TIME	**18.5 hours**

The agenda will be drafted prior to the meeting and the required times and topics may be adjusted based on current site status.

Fiscal Year 2013 Goals

Goal #	Site	Goal	Complete by	Status as of 05/23/13	Future Agenda Items
1.	6/82	Draft Supplemental Investigation Tech Memo	28 July 2013	On track	GW report update & RTCs
2.	6/82	Final Supplemental Investigation Tech Memo	28 August 2013	On track	
3.	49	Draft ROD	30 March 2013	Complete	
4.	49	Final ROD	30 June 2013	On track	Discuss RD
5.	69	Final ROD	11 March 2013	Complete, pending signature	
6.	69	Final RD	20 February 2013	Complete	
7.	69	RA Work Plan	TBD	TBD	RA Update
8.	78	Draft Supplemental Investigation Tech Memo	28 June 2013	On track	Update
9.	78	Final Supplemental Investigation Tech Memo	28 July 2013	On track	
10.	78	Draft Treatability Study Work Plan	28 June 2013	On track	
11.	78	Final Treatability Study Work Plan	August 2013	On track	
12.	86	Draft FS	17 April 2013	Complete	
13.	86	Final FS	30 August 2013	On track	
14.	86	Draft PRAP	15 August 2013	On track	RTC Update
15.	86	Final PRAP	15 October 2013	On track	
16.	86	Public Meeting	November 2013	On track	
17.	86	Draft ROD	November 2013	On track	
18.	86	Final ROD	February 2014	On track	
19.	88	Draft FS	16 March 2012	On hold	
20.	88	Final FS	TBD	On hold	
21.	88	Draft PRAP	TBD	On hold	
22.	88	Final PRAP	TBD	On hold	
23.	88	Draft ROD	TBD	On hold	
24.	88	Final ROD	TBD	On hold	
25.	89	Draft AS Closeout Report	30 August 2013	On track	Osage update

Fiscal Year 2013 Goals

Goal #	Site	Goal	Complete by	Status as of 05/23/13	Future Agenda Items
26.	89	Draft PRB Closeout Report	31 December 2013	On track	Sepi update
27.	89	RACR	TBD	TBD	
28.	96 (Former SWMU 360)	Complete Delineation for SRI/FS	TBD	TBD	
29.	LTM	Draft FY2012 Report	30 June 2013	On track	
30.	LTM	Final FY2012 Report	30 August 2013	On track	
31.	LTM	Draft FY2014 UFP-SAP	30 June 2013	On track	RTCs
32.	LTM	Final FY2014 UFP-SAP	30 August 2013		
33.	UXO-06	Draft RI/FS	30 November 2013	On track	Update
34.	UXO-06	Final RI/FS	30 January 2014	On track	
35.	UXO-14	NTCRA Report (Osage)	30 July 2013	On track	RTCs
36.	UXO-19	Draft RI/FS	30 July 2013	On track	RTCs
37.	UXO-19	Final RI/FS	30 August 2013	On track	
38.	UXO-21	Draft Phase II ESI UFP-SAP	30 March 2013	Complete	Field Update
39.	UXO-21	Final Phase II ESI UFP-SAP	07 June 2013	On track	
40.	UXO-22	Draft RI UFP-SAP	14 May 2013	Complete	Field Update
41.	UXO-22	Final RI UFP-SAP			
42.	UXO-23	Draft NTCRA Report (Osage)	May 2013	On track	RTCs
43.	UXO-23	Final NTCRA Report (Osage)	July 2013	On track	
44.	UXO-23	Draft Phase II NTRCA Sampling UFP-SAP Addendum	15 July 2013	On track	RTCs
45.	UXO-23	Final Phase II NTRCA Sampling UFP-SAP Addendum	30 August 2013	On track	
46.	UXO-24	Draft Revised UFP-SAP	01 May 2013	Complete	Field update
47.	UXO-24	Final Revised UFP-SAP	30 June 2013	On track	
48.	UXO-24	Draft PA/SI Report	30 December 2013	On track	
49.	UXO-27 (Gun Position Owl) ASR # 2.212	Draft Work Plan	September 2013		Update
50.	UXO-28 (Wallace Creek MRS)	Draft Work Plan	TBD		Update

Fiscal Year 2013 Goals

Goal #	Site	Goal	Complete by	Status as of 05/23/13	Future Agenda Items
51.	UXO-29 (MCAS Former Demonstration range)	Draft Work Plan	September 2013		Update
52.	SDZ	Draft ESI Report	30 September 2013	On track	Discuss path forward
53.	SDZ	Final ESI Report	31 December 2013	On track	
54.	VIMS	Draft Annual Report	30 July 2013	On track	Update
55.	VIMS	Final Annual Report	30 September 2013	On track	
56.	UST/RCRA VI	Draft Work Plan	30 June 2013	On track	Field/data update
57.	UST/RCRA VI	Final Work Plan	30 July 2013	On track	
58.	SMP	Draft FY14 Update	30 June 2013	On track	RTCs
59.	SMP	Final FY14 Update	30 August 2013	On track	
60.	Five-Year Review Recommendations	Draft OU1 Metals Tech Memo	30 June 2013	On track	
61.	Five-Year Review Recommendations	Draft OU2 Metals Tech Memo	30 September 2013	On track	
62.	Five-Year Review Recommendations	Draft Sites 1, 16, 28, and 63 LUCIPs	30 June 2013	On track	

Rec - high priority document reviews
Yellow – upcoming/recent document submittals
Green – comments received/finalizing document